(*P*=.3883). Out of the 167 bypasses, 141 had foot tissue loss. In the CPA group 93% of tissue loss with DAR healed (median time-to-healing; 56 days) compared to 100% in the non-DAR (98 days). Similarly in the IPA group 95% with DAR healed (106 days) compared to 90% in the non-DAR (94 days). While in the NPA group only 75% with DAR healed (81 days) compared to 73% in the non-DAR (148 days). There was only statistical significant difference in the time-to-healing between CPA/IPA versus NPA group (*P*=.0141).

Conclusions: The quality of the pedal arch did not influence the patency or the amputation-free survival rates. However, the healing and time-to-healing rates were directly influenced by the quality of the pedal arch rather than the angiosome revascularized.

Author Disclosures: M. Edmonds: Nothing to disclose; **H. Rashid:** Nothing to disclose; **H. Slim:** Nothing to disclose; **H. Zayed:** Nothing to disclose.

VS1.

Video Presentation

Ultrasound for the Diagnosis and Treatment of Popliteal Entrapment Syndrome

Marlin W. Causey, Thomas Curry, Reagan Quan, Charles Andersen, Niten Singh. Madigan Army Medical Center, Ft. Lewis, WA

Background: Popliteal Entrapment Syndrome is a rare cause of claudication in the young population. These patients are typically referred to multiple specialists prior to their diagnosis and optimal treatment. Ultrasound has commonly been used as an adjunct to clinical diagnosis in most outpatient clinics. We describe additional techniques of using intravascular ultrasound for diagnosis when angiography is performed. More importantly, this video highlights the intraoperative use of ultrasound to ensure an adequate and optimal myectomy when treating popliteal entrapment syndrome as well as an ability to survey the arterial wall for intimal injury with B mode duplex.

Technical Description: Patients are most commonly diagnosed clinically with popliteal entrapment syndrome. During the time of angiography, intravascular ultrasound is able to demonstrated distinct compression of the popliteal artery with active plantar flexion. Palpation has traditionally been used to assess the adequacy of resection for popliteal entrapment but this may prove to be inadequate with some patients and intraoperative ultrasound allows assessment of the adequacy of resection. We also perform B mode duplex after complete resection to survey for intimal changes that may not have been seen during the preoperative workup.

Author Disclosures: C. Andersen: Nothing to disclose; **M. W. Causey:** Nothing to disclose; **T. Curry:** Nothing to disclose; **R. Quan:** Nothing to disclose; **N. Singh:** Nothing to disclose.

SS3.

Infrapopliteal Angioplasty for Critical Limb Ischemia: Results at 5-year Follow-up

Ruby C. Lo, Rodney P. Bensley, Kristina A. Giles, Jeremy D. Darling, Mark Wyers, Allen D. Hamdan, Elliot Chaikof, Marc L. Schermerhorn. Beth Israel Deaconess Medical Center, Boston, MA

Objectives: Infrapopliteal angioplasty (PTA) is routinely used to treat critical limb ischemia (CLI) despite limited data on long-term outcomes.

Methods: We reviewed all patients undergoing infrapopliteal PTA for CLI from 2004 to 2011 stratified by TASC class. Outcomes included restenosis, primary patency, reintervention (w/ PTA or bypass), amputation, complications, and survival.

Results: Infrapopliteal PTA (stenting 14%, multilevel intervention 50%) was performed in 447 limbs of 401 patients (59% male) with technical success of 95% and perioperative complications in 11%. TASC composition was 17% A, 22% B, 29% C, and 35% D. All technical failures involved TASC D lesions. Mean follow-up was 15 months. 5-year survival was 46%. One- and 5-year primary patency was 55% & 36% and limb salvage was 84% & 81%. Restenosis was associated with TASC C (HR 2.1, 95%CI 1.1-3.8, *P*=.021) and TASC D (HR 2.1, 95%CI 1.0-4.0, *P*=.036) lesions. Amputation rates were higher in patients who were not candidates for bypass (HR 4.3, 95%CI 2.5-7.3, *P*<.001) and with TASC D lesions (HR 3.7, 95%CI 1.1-12.4, *P*=.032). Together, freedom from restenosis, revascularization or amputation was predicted by bypass non-candidacy (HR 1.6, 95%CI 1.1-2.4, *P*=.007) and TASC C (HR 1.8, 95%CI 1.1-3.0, *P*=.024) and TASC D (HR 2.0, 95%CI 1.2-3.3, *P*=.011) lesions but not multilevel intervention (HR .9, 95%CI 0.6-1.2, *P*=.462).

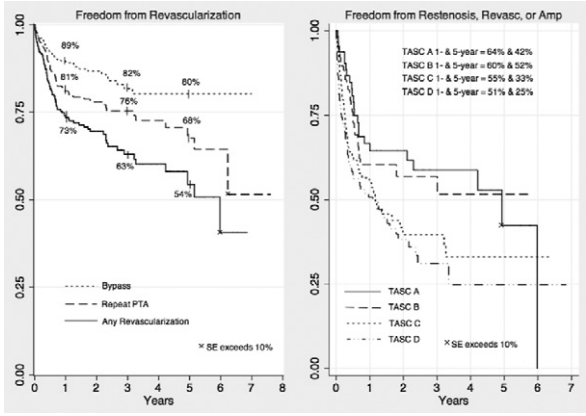

Fig.

Conclusions: Infrapopliteal PTA is effective primary therapy for TASC A and B lesions. Multilevel intervention does adversely affect outcome.

Author Disclosures: R. P. Bensley: Nothing to disclose; **E. Chaikof:** Nothing to disclose; **J. D. Darling**: Nothing to disclose; **K. A. Giles:** Nothing to disclose; **A. D. Hamdan:** Nothing to disclose; **R. C. Lo:** Nothing to disclose; **M. L. Schermerhorn:** Endologix,Consulting fees or other remuneration (payment)Medtronic,Consulting fees or other remuneration (payment)Boston Scientific,Consulting fees or other remuneration (payment); **M. Wyers:** Nothing to disclose.

SS4.

Patient Centered Outcomes Following Endovascular Intervention for Critical Limb Ischemia

Javier E. Anaya-Ayala, Christopher J. Smolock, Charudatta S. Bavare, Mitul S. Patel, Hosam F. El-Sayed, Jean Bismuth, Eric K. Peden, Alan Lumsden, Mark G. Davies. Cardiovascular Surgery, Methodist DeBakey Heart & Vascular Center, Houston, TX

Objectives: Over the last decade, there has been a significant increase in primary endoluminal therapy for critical limb ischemia (CLI; rest pain and tissue loss) of the lower extremity (LE) with limited reporting on patient centered outcomes using the new objective performance goals of the SVS.

Methods: A prospective database of patients undergoing endovascular treatment of the LE for CLI between 2000 and 2011 was queried. Patient centered outcomes of clinical efficacy (CE; absence of recurrent symptoms, maintenance of ambulation and absence of major amputation), amputation-free survival (AFS; survival without major amputation) and freedom from major adverse limb events (MALE; Above ankle amputation of the index limb or major re-intervention (new bypass graft, jump/interposition graft revision) were evaluated.

Results: 728 patients (60% male, age 68±14years) underwent LE interventions for CLI (66% tissue loss). 39% had both SFA and tibial interventions. 71% had diabetes mellitus, 64% had hyperlipidemia and 37% had chronic renal insufficiency. Technical success was 96%. Overall MACE was 3% and MALE was 22% at 30 days. At 5 years, CE was 42±5%, (Mean±SEM), AFS 41±7% and MALE 51±4%. CE was significantly different in those presenting with rest pain and tissue loss (Fig).

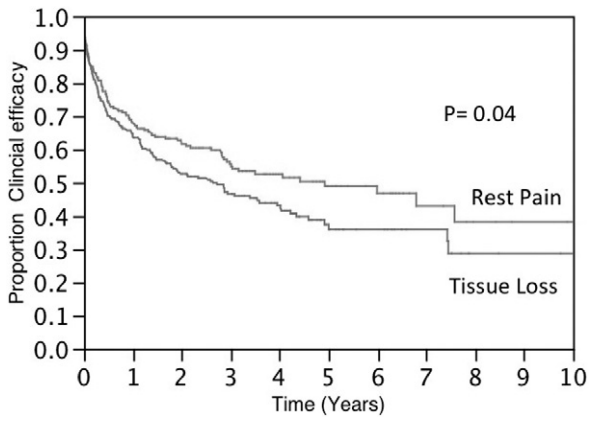

Fig.

Conclusions: Endoluminal therapy for CLI is associated with an early low MACE but a high MALE. Longer-term outcomes remain relatively poor with less that a 40% success in patient centered outcomes at 5 years.

Author Disclosures: J. E. Anaya-Ayala: Nothing to disclose; **C. S. Bavare:** Nothing to disclose; **J. Bismuth:** Nothing to disclose; **M. G. Davies:** Nothing to disclose; **H. F. El-Sayed:** Nothing to disclose; **A. Lumsden:** Nothing to disclose; **M. S. Patel:** Nothing to disclose; **E. K. Peden:** Nothing to disclose; **C. J. Smolock:** Nothing to disclose.

SS5.

SVS Foundation Resident Research Prize Winner

A Novel Mouse Model of Hind Limb Ischemia to Test Therapeutic Angiogenesis

Robert Brenes[2], Caroline C. Jadlowiec[1], Mackenzie Bear[1], Peter Hashim[1], Clinton D. Protack[1], Xin Li[1], Wei Lv[1], Michael J. Collins[1], Alan Dardik[1]. [1]Interdepartmental Program in Vascular Biology and Therapeutics, Yale University School of Medicine, New Haven, CT; [2]Saint Mary's Hospital, The Stanley J. Dudrick Department of Surgery, Waterbury, CT

Objectives: Clinical trials currently evaluating stem cell therapy for patients with critical limb ischemia are conducted with different protocols, including use of different stem cell populations and different injection protocols, providing little means to compare trials and guide therapy. Accordingly, we developed a murine model of severe ischemia to allow methodical testing of relevant clinical parameters.

Methods: High femoral artery ligation and total excision of the superficial femoral artery was performed on C57BL/6 mice. MNC were isolated from the bone marrow of donor mice and injected into the semimembranosus or gastrocnemius muscle. Vascular and functional outcomes were measured using invasive Doppler, laser Doppler perfusion imaging, and the Tarlov and ischemia scores. Histological analysis included quantification of muscle fiber area and number as well as capillary density.

Results: Blood flow and functional outcomes were improved in MNC-treated mice as compared to controls over a 4-week time course (Flow: $P < .0001$; Tarlov: $P = .0004$; ischemia score: $P = .0002$). MNC-treated mice also showed greater gastrocnemius fiber area ($P = .0053$) and increased capillary density ($P = .0004$). Dose-response analysis showed increased angiogenesis and gastrocnemius fiber area but no changes in macroscopic vascular flow or functional scores. Mice injected proximally to the ischemic area had overall similar functional outcomes to mice in-